

CLAIMS

What is claimed is:

1. A gastrointestinal implant device comprising:

an elongated tube defining a central lumen, the tube being open at both ends, and adapted to extend into the duodenum; and

an anchor coupling the proximal end of the tube in alignment with the hepatopancreatic ampulla, the tube passing digestive enzymes from the hepatopancreatic ampulla into a distal portion of the gastrointestinal tract.

10 2. The gastrointestinal implant device of claim 1, wherein the anchor is positioned within the hepatopancreatic ampulla.

3. The gastrointestinal implant device of claim 1, wherein the tube comprises a flexible sleeve.

15 4. The gastrointestinal implant device of claim 1, wherein the distal portion of the gastrointestinal tract is the distal jejunum.

5. The gastrointestinal implant device of claim 1, wherein the flexible sleeve is formed of expanded polytetrafluoroethylene (ePTFE).

6. The gastrointestinal implant device of claim 1, wherein the flexible sleeve is formed of polyethylene.

25 7. The gastrointestinal implant device of claim 1, wherein the flexible sleeve comprises a coating.

8. The gastrointestinal implant device of claim 7, wherein the coating is a polyurethane-based coating.

9. The gastrointestinal implant device of claim 7, wherein the coating is a silicone-based coating.
10. The gastrointestinal implant device of claim 1, wherein the sleeve material has a coefficient of friction of less than about 0.2.
11. The gastrointestinal implant device of claim 1, wherein the anchor is cylindrical, defining a lumen, and preferably having an external diameter selected to provide an interference fit with the hepatopancreatic ampulla.
12. The gastrointestinal implant device of claim 1, wherein the anchor is cylindrical, defining a lumen, and preferably having an external diameter between about 5 and about 10 millimeters.
13. The gastrointestinal implant device of claim 1, wherein the anchor is cylindrical, defining a lumen, and more preferably having an external diameter between about 8 and about 10 millimeters.
14. The gastrointestinal implant device of claim 1, wherein the anchor is cylindrical, defining a lumen, and preferably having a length between about 1 and about 5 centimeters.
15. The gastrointestinal implant device of claim 1, wherein the anchor is collapsible.
- 25 16. The gastrointestinal implant device of claim 15, wherein the anchor is formed of shape memory material.
17. The gastrointestinal implant device of claim 16, wherein the shape memory material comprises a nickel-titanium (Ni-Ti) alloy.

18. The gastrointestinal implant device of claim 1, wherein the anchor comprises a stent.
19. The gastrointestinal implant device of claim 1, wherein the anchor is at least partially covered by a proximal portion of the flexible sleeve.
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20. The gastrointestinal implant device of claim 1, wherein the anchor comprises barbs extending from the exterior surface of the anchor, the barbs configured for securing the proximal portion of the sleeve in the hepatopancreatic ampulla.
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21. The gastrointestinal implant device of claim 20, wherein the barbs are configured to penetrate bodily tissue.
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22. The gastrointestinal implant device of claim 20, wherein the barbs are substantially bi-directional, extending outward, in opposing directions that are substantially parallel to the central axis of the proximal end of the flexible sleeve.
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23. The gastrointestinal implant device of claim 1, wherein the anchor comprises:
a non-removable element securedly coupled in the hepatopancreatic ampulla; and
25 a removable element coupled to the proximal end of the sleeve, the removable element removably coupled to the non-removable element for removably securing the proximal end of the sleeve in the hepatopancreatic ampulla.
24. The gastrointestinal implant device of claim 23, wherein the non-removable element comprises barbs extending from its exterior surface for securing it in the hepatopancreatic ampulla.
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25. The gastrointestinal implant device of claim 23, wherein the non-removable element comprises a feature adapted for coupling the removable element.
26. The gastrointestinal implant device of claim 1, wherein the anchor comprises an annular element having retractable staples, the staples coupled to bodily tissue, when engaged.
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27. A gastrointestinal implant device comprising:
means for anchoring in the hepatopancreatic ampulla; and
10 means for passing digestive enzymes from the hepatopancreatic ampulla into the distal jejunum via peristalsis.
28. A method of enabling weight loss comprising the step of:
providing an elongated tube, open at both ends, and adapted to extend
15 into the duodenum; and
aligning a proximal end of the elongated tube with the hepatopancreatic ampulla;
anchoring the proximal end of the elongated tube to the hepatopancreatic ampulla;
20 extending the distal end of the elongated tube into a distal portion of the gastrointestinal tract, the elongated tube depositing digestive enzymes into the distal intestine.
29. The method of claim 28, wherein the digestive enzymes are deposited into the distal intestine via peristalsis.
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30. The method of claim 28, wherein the elongated tube comprises an elongated, flexible sleeve.

31. The method of claim 30, wherein the elongated, flexible sleeve is formed of expanded polytetrafluoroethylene (ePTFE).
 32. The method of claim 30, wherein the elongated, flexible sleeve is formed of polyethylene.
 33. The method of claim 30, wherein the elongated, flexible comprises an anchor coupled to the proximal end of the sleeve, the anchor comprising barbs extending from the exterior surface of the anchor for anchoring the proximal portion of the sleeve to the hepatopancreatic ampulla.
 34. The method of claim 30, wherein the elongated, flexible has a sufficient length to extend from the hepatopancreatic ampulla to the distal jejunum.
- 15 35. A method of treating Type-2 diabetes comprising the step of:
providing an elongated tube, open at both ends, and adapted to extend into the duodenum; and
aligning a proximal end of the elongated tube with the hepatopancreatic ampulla;
20 anchoring the proximal end of the elongated tube to the hepatopancreatic ampulla;
extending the distal end of the elongated tube into a portion of the gastrointestinal tract distal to the hepatopancreatic ampulla, the elongated tube depositing digestive enzymes into the distal intestine.
- 25 36. The method of claim 35, wherein the elongated tube comprises an elongated flexible sleeve.

37. The method of claim 36, wherein the elongated tube further comprises an anchor attached to the proximal end of the elongated flexible sleeve, the anchor configured for securing the proximal end of the elongated, flexible sleeve to the hepatopancreatic ampulla.

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38. The method of claim 35, wherein the digestive enzymes are deposited into the distal intestine via peristalsis.